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071305T4ELC

ELECTRONICS CRAFTPERSON LEVEL 5

ENG/OS/ET/CR/04/5/A

Apply Electrical Instrumentation

Nov/Dec 2024

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

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PRACTICAL ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. You are required to perform the following task

TASK: Mount and solder a Q meter circuit

2. You have been provided with the following resources for the practical tasks:
   - *RF Oscillator (50KHz – 50Mhz)*
   - *Shunt resistor 0.02Ω*
   - *Inductor coil of unknown value*
   - *Variable capacitor (30-460pF)*
   - *Thermocouple voltmeter*
   - *Electronic voltmeter (VTVM)*
   - *AC Supply 240v 50Hz*
   - *Solder wire*
   - *Printed circuit board 14.5cm x 6.5cm*
   - *Multimeter*

- *Connecting wires*
- *Solder sucker*
- *Soldering gun*
- *Side cutters*
- *Wire Stripper*
- *Soldering gun stand*

TASK: Figure 1 shows an instrument that is designed to measure some of electrical properties of coils and capacitors by measuring the Q value of an R-L-C circuit.

i. Using the components and equipment provided, mount and solder the circuit

ii. Power the constructed circuit and determine the value of the following:

i) E

ii) E_C

iii) Q factor

iv) L and R under these conditions; either by setting the oscillator to a given frequency and varying c or by keeping value of c constant and adjusting the oscillator frequency

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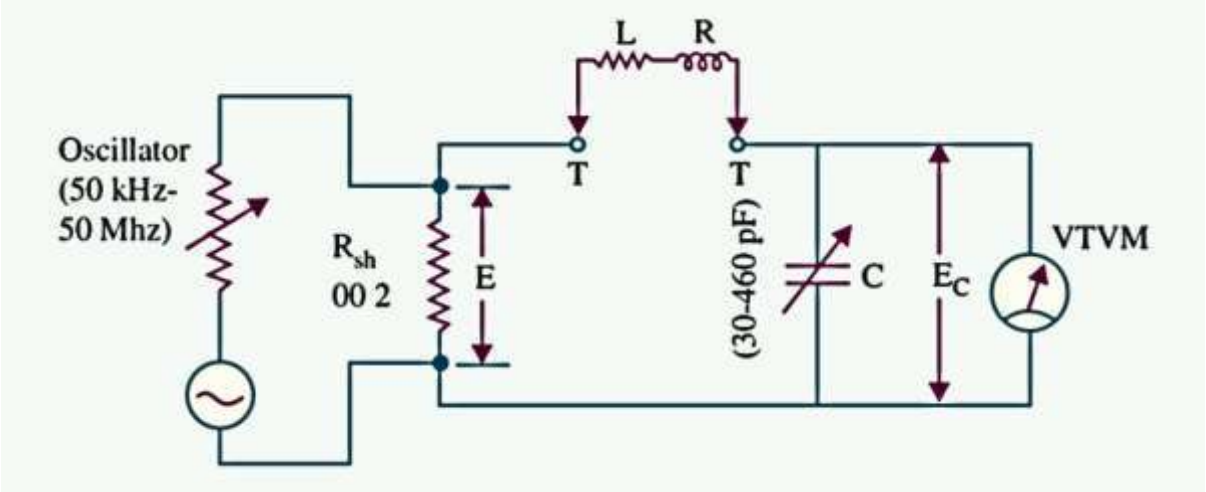


Figure 1